



US010059394B2

(12) **United States Patent**
Robarge

(10) **Patent No.:** **US 10,059,394 B2**
(45) **Date of Patent:** **Aug. 28, 2018**

(54) **ALL-TERRAIN VEHICLE TRAILER**

(71) Applicant: **Michael P. Robarge**, Venice, FL (US)

(72) Inventor: **Michael P. Robarge**, Venice, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 60 days.

(21) Appl. No.: **15/250,142**

(22) Filed: **Aug. 29, 2016**

(65) **Prior Publication Data**

US 2018/0056740 A1 Mar. 1, 2018

(51) **Int. Cl.**

B62D 63/00 (2006.01)
B62D 61/00 (2006.01)
B60D 1/58 (2006.01)
B60R 9/06 (2006.01)
B60D 1/00 (2006.01)

(52) **U.S. Cl.**

CPC **B62D 61/00** (2013.01); **B60D 1/58** (2013.01); **B60R 9/06** (2013.01); **B60D 2001/005** (2013.01)

(58) **Field of Classification Search**

CPC B60D 1/54; B60D 1/155; B60D 2001/544; B62D 61/00
USPC 280/401
See application file for complete search history.

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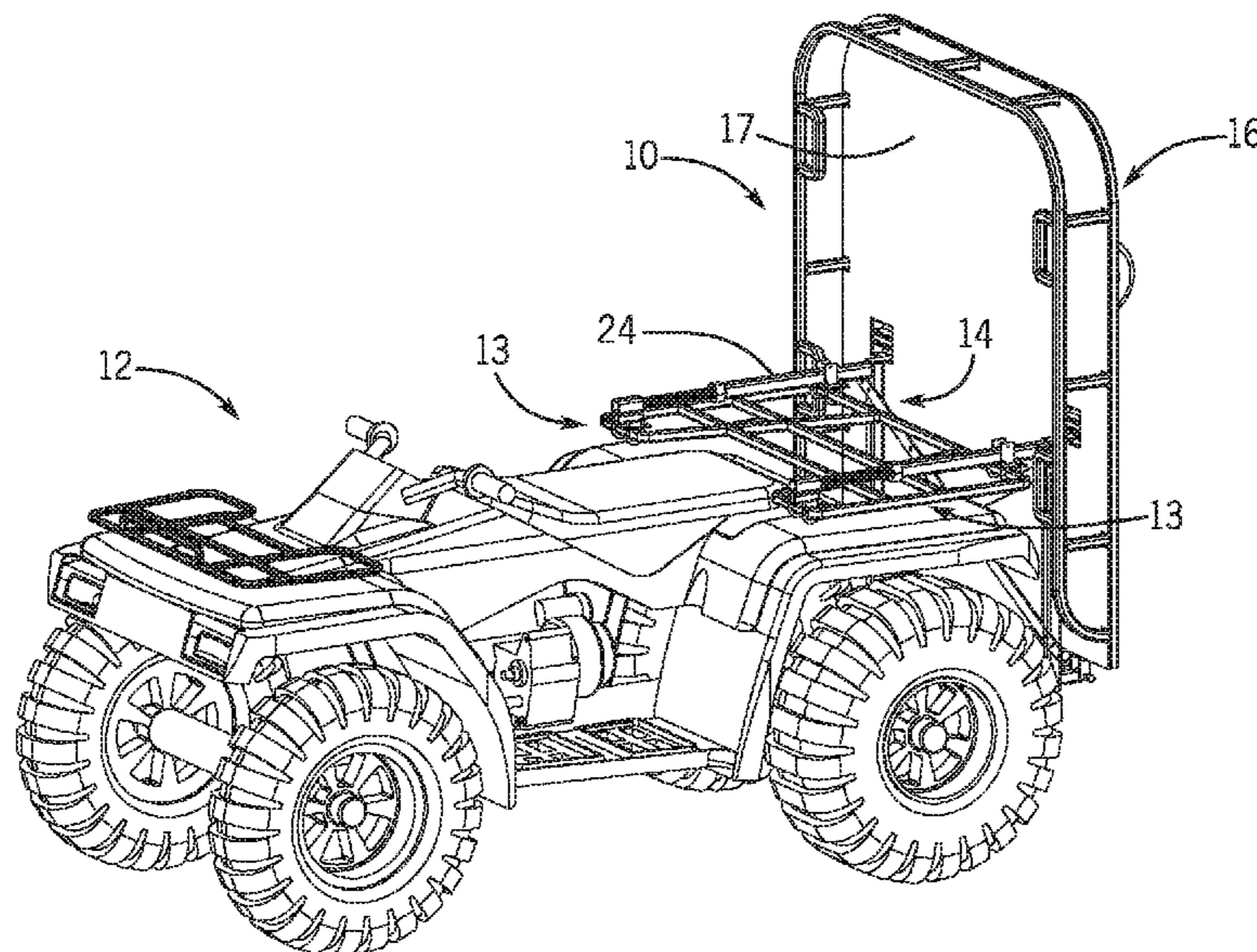
Primary Examiner — Jacob D Knutson

(74) *Attorney, Agent, or Firm* — Dunlap Bennett & Ludwig PLLC

(57) **ABSTRACT**

An all-terrain vehicle (ATV) trailer is provided. The ATV trailer includes an ATV mount operable to secure to a rear end of an ATV/UTV. The ATV trailer further includes a trailer frame having a platform. The trailer frame is pivotally secured to the ATV mount. At least one wheel is secured to a bottom surface of the trailer frame. A locking mechanism is operable to lock the trailer frame in a retracted position and a deployed position. The retracted position includes the trailer frame substantially vertical and pivoted towards the ATV and the deployed position includes the trailer frame substantially horizontal and pivoted away from the ATV.

9 Claims, 8 Drawing Sheets



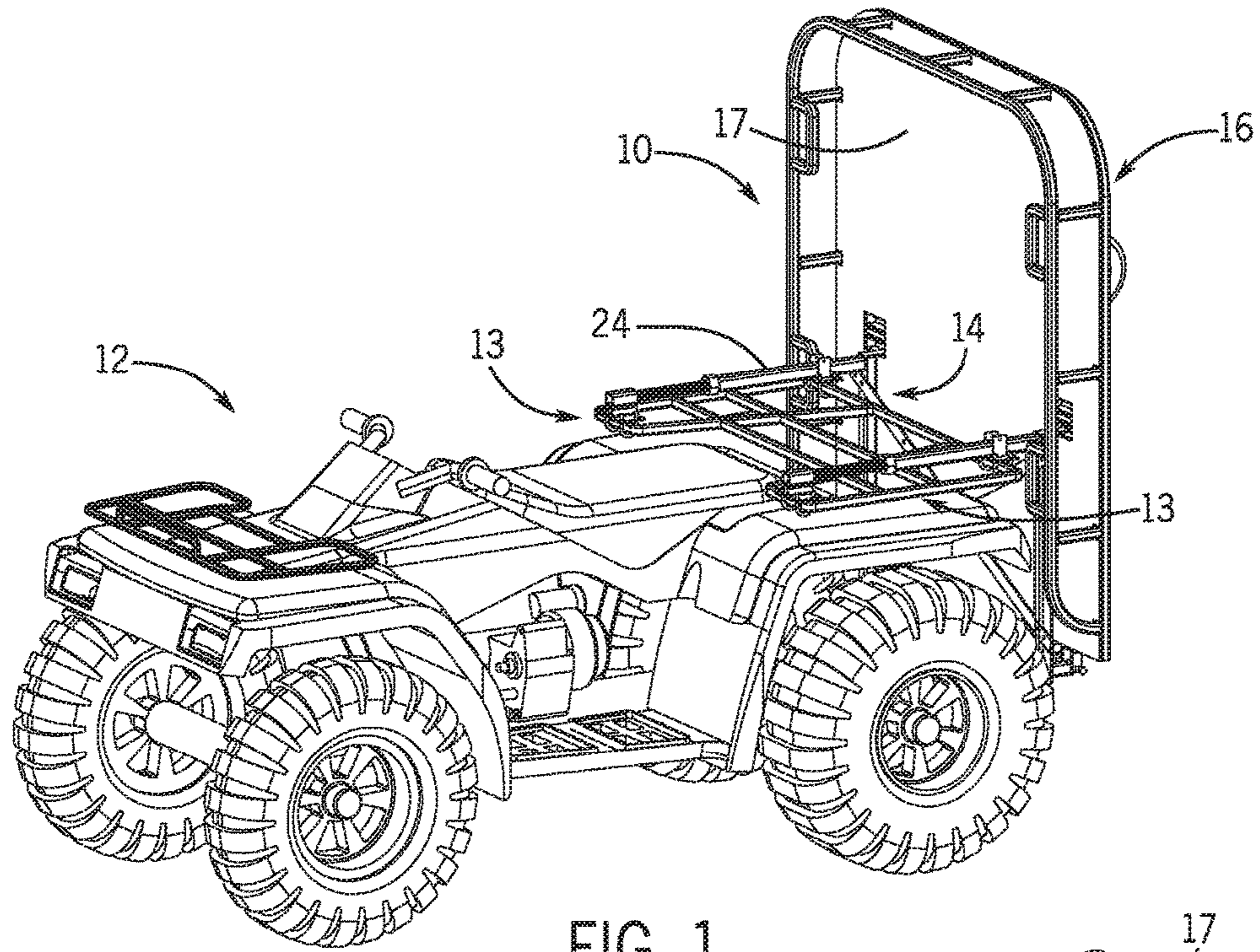


FIG. 1

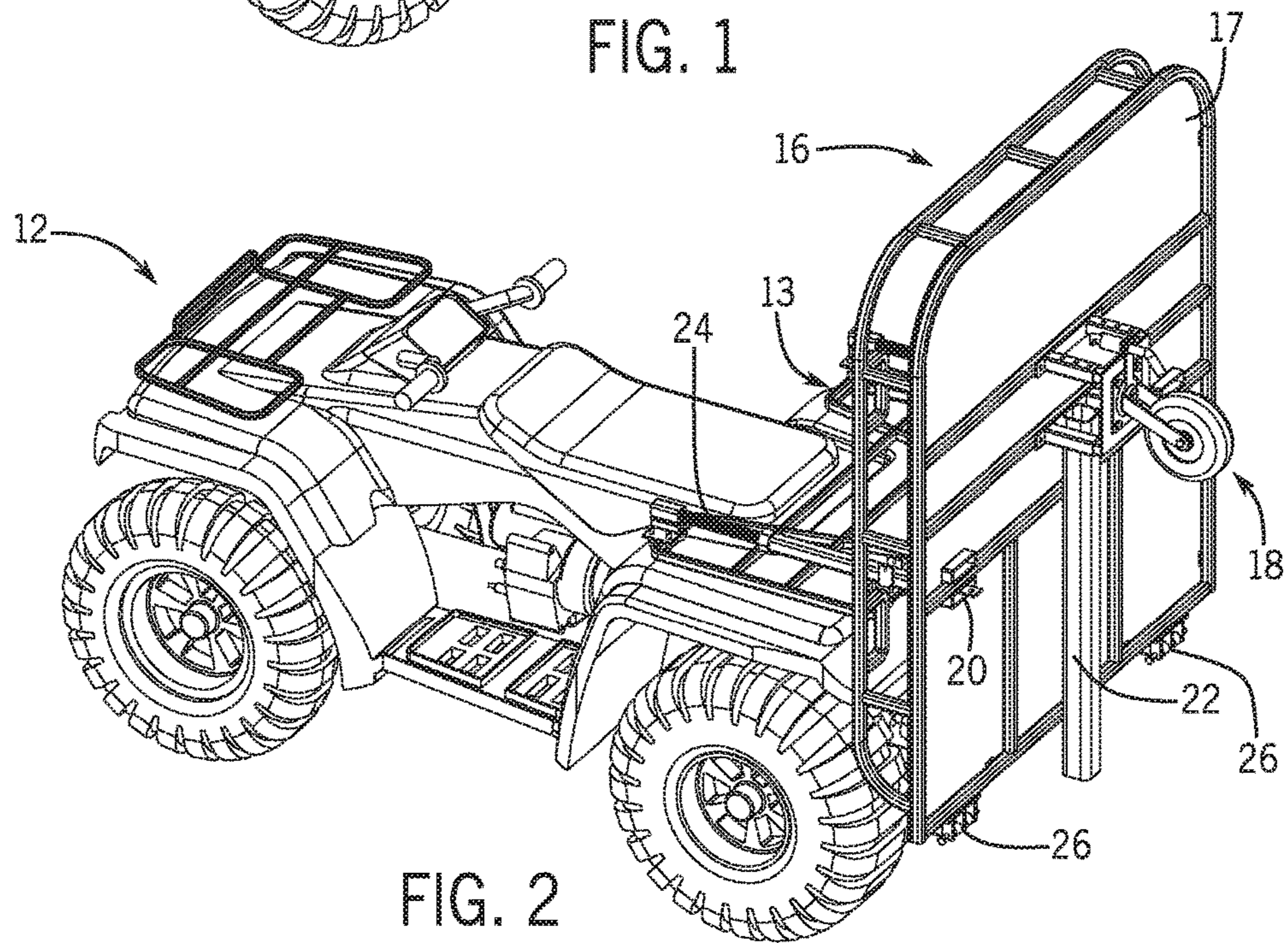


FIG. 2

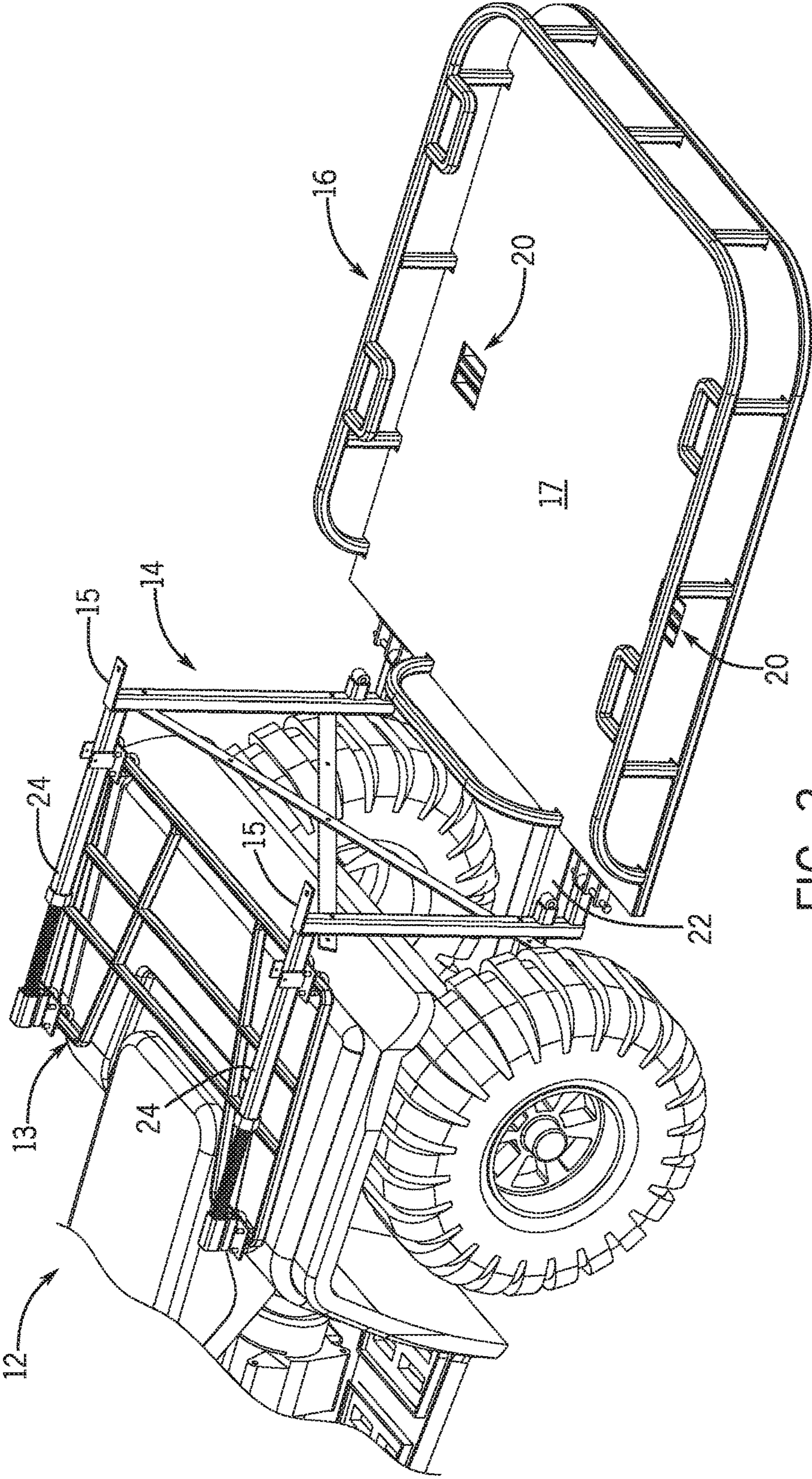
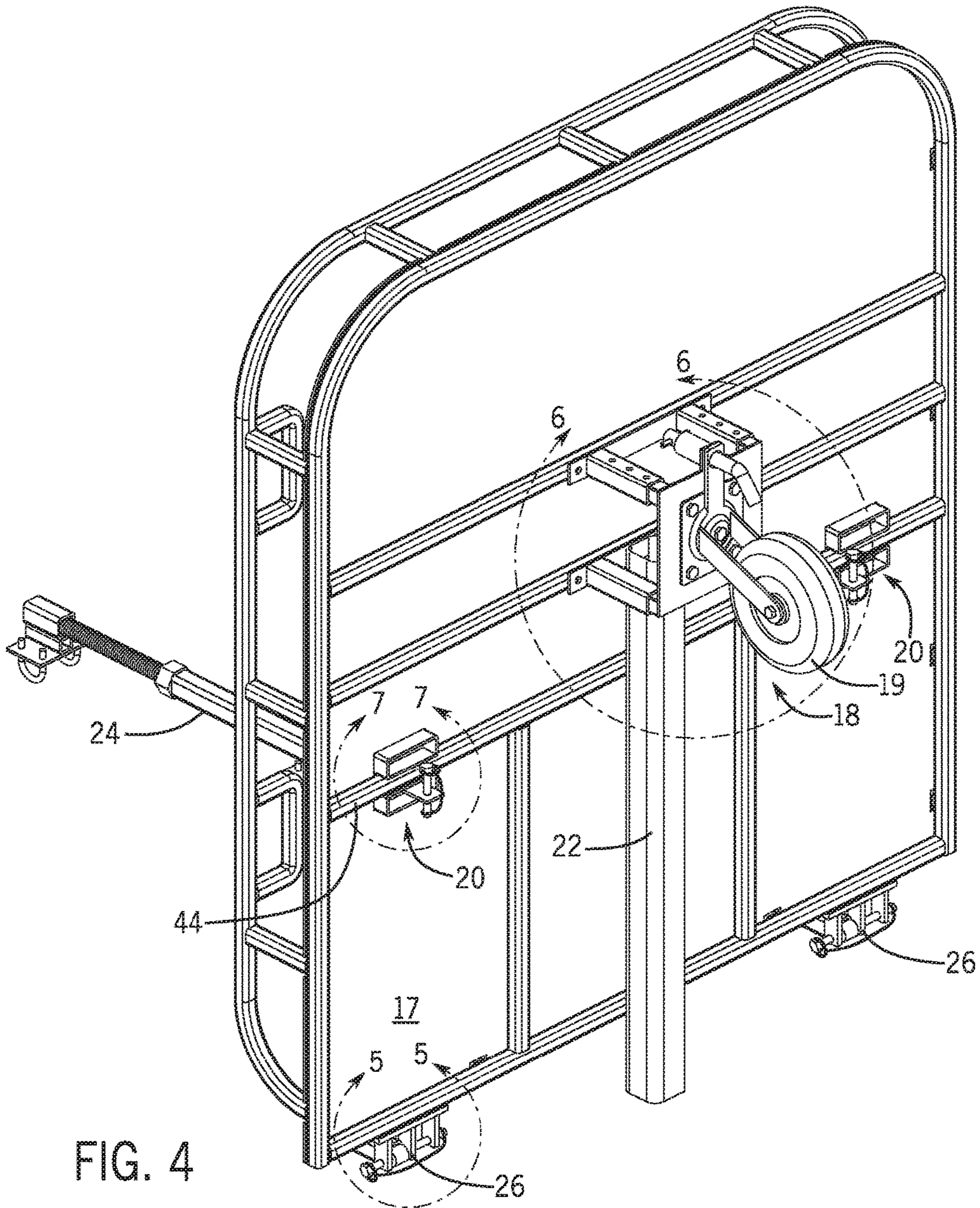


FIG. 3



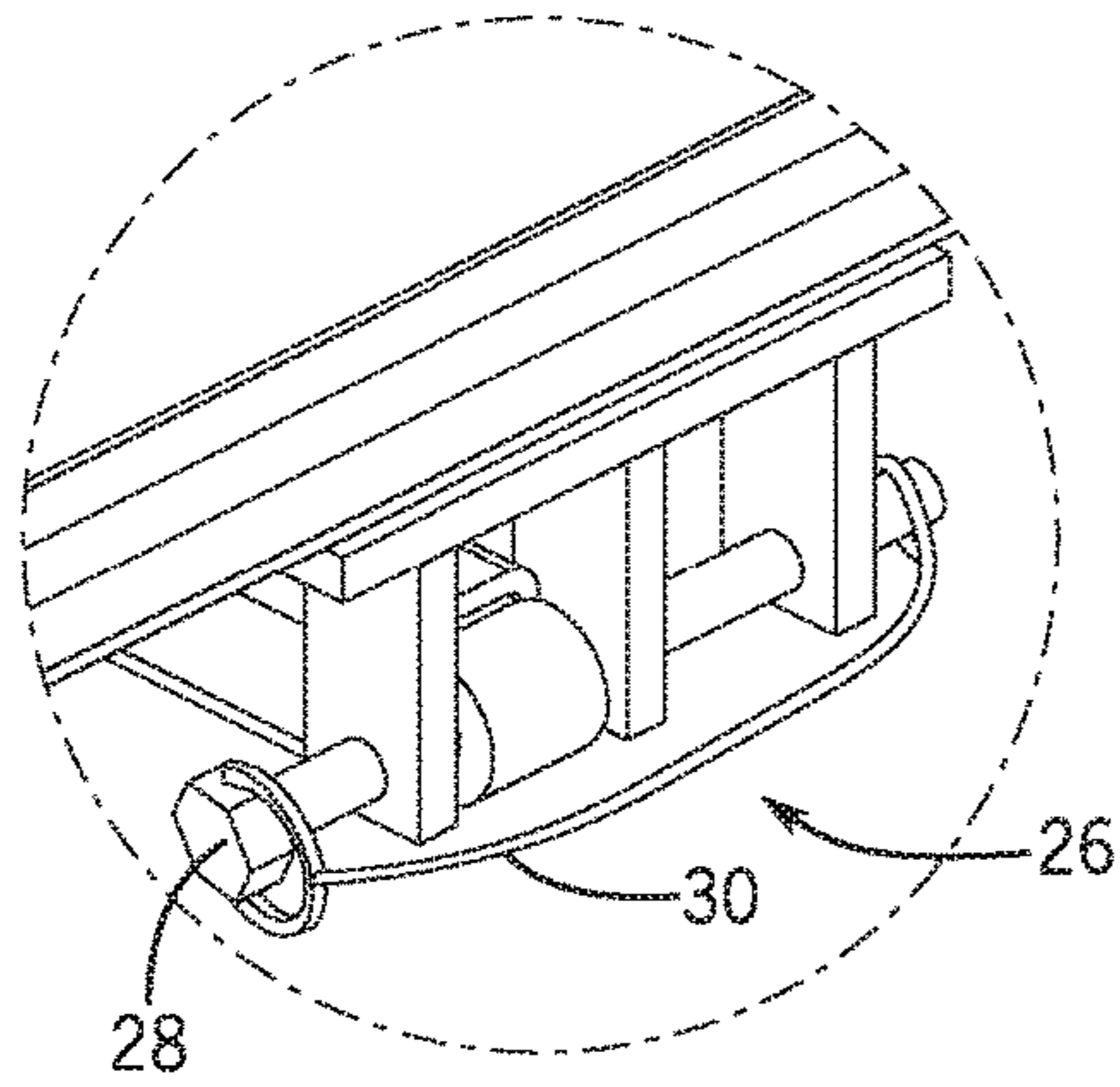


FIG. 5

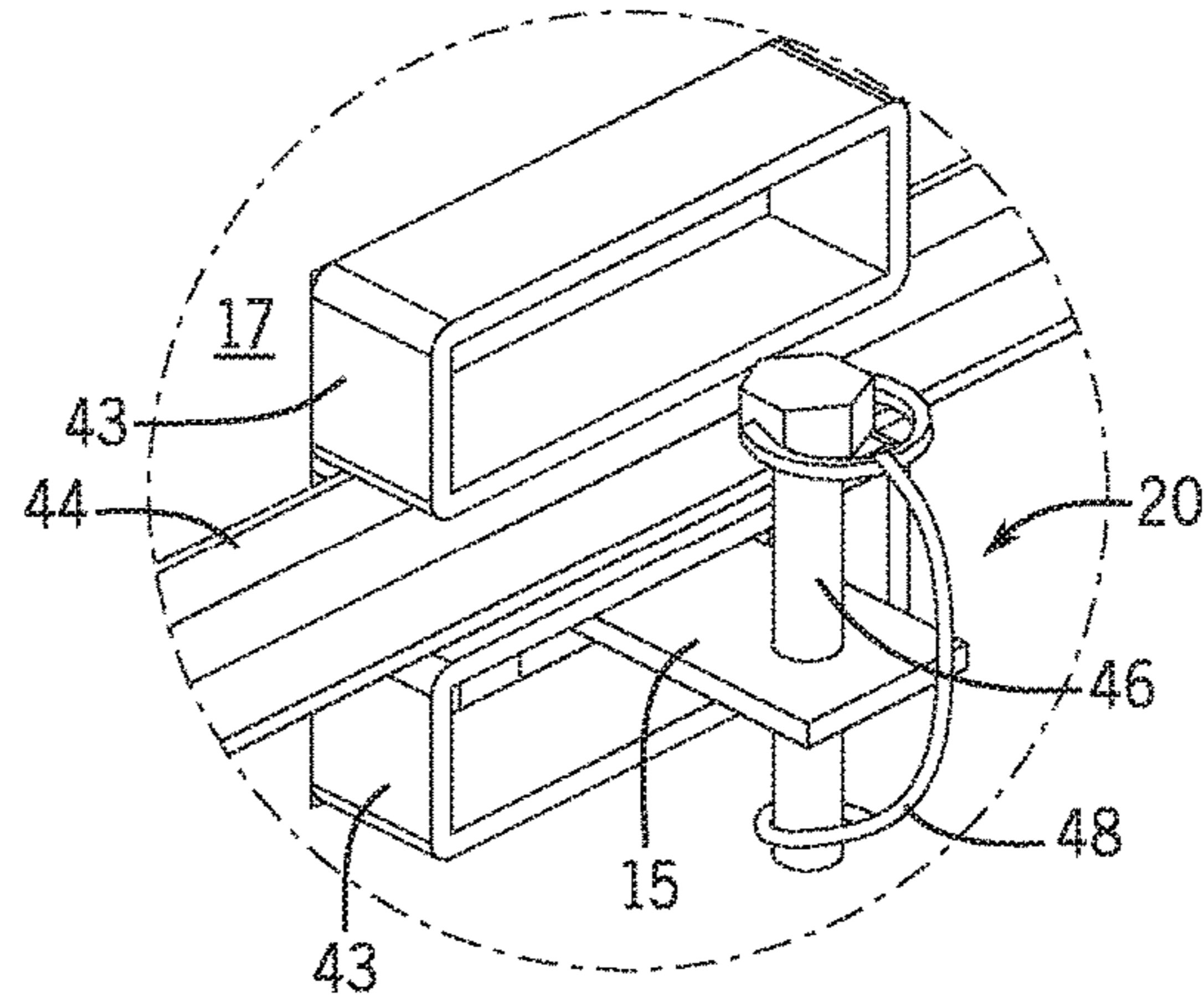


FIG. 7

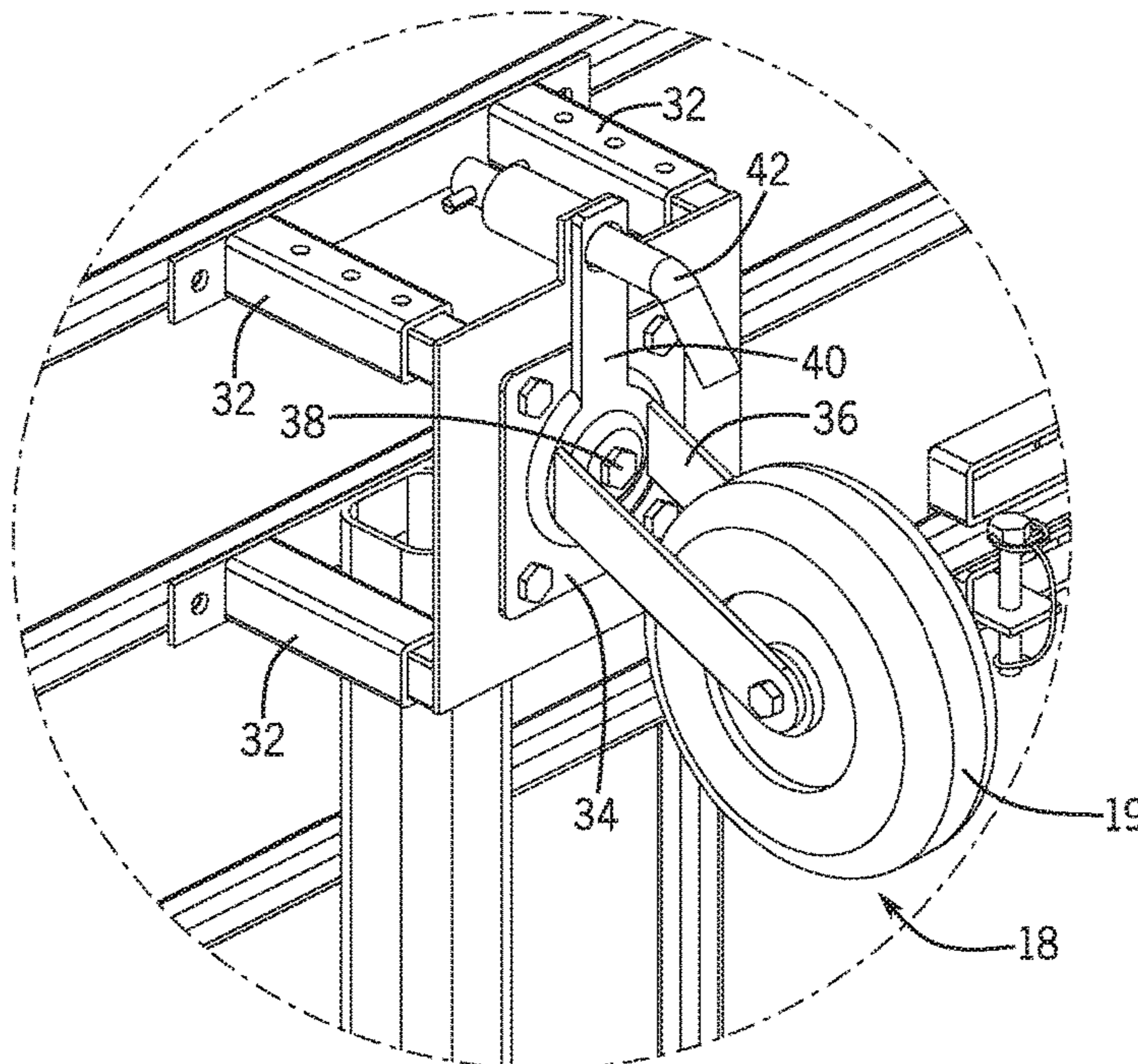


FIG. 6

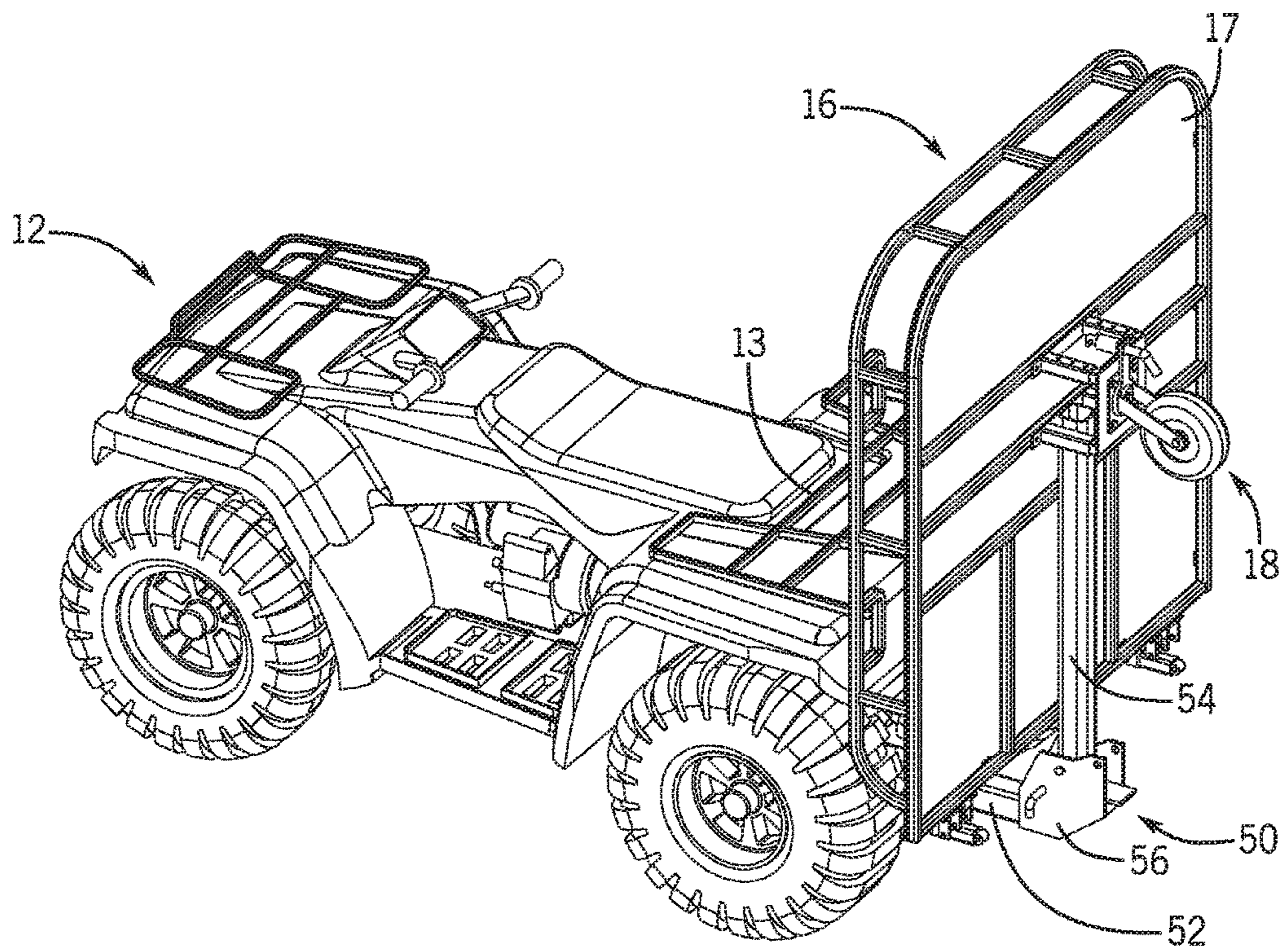


FIG. 8

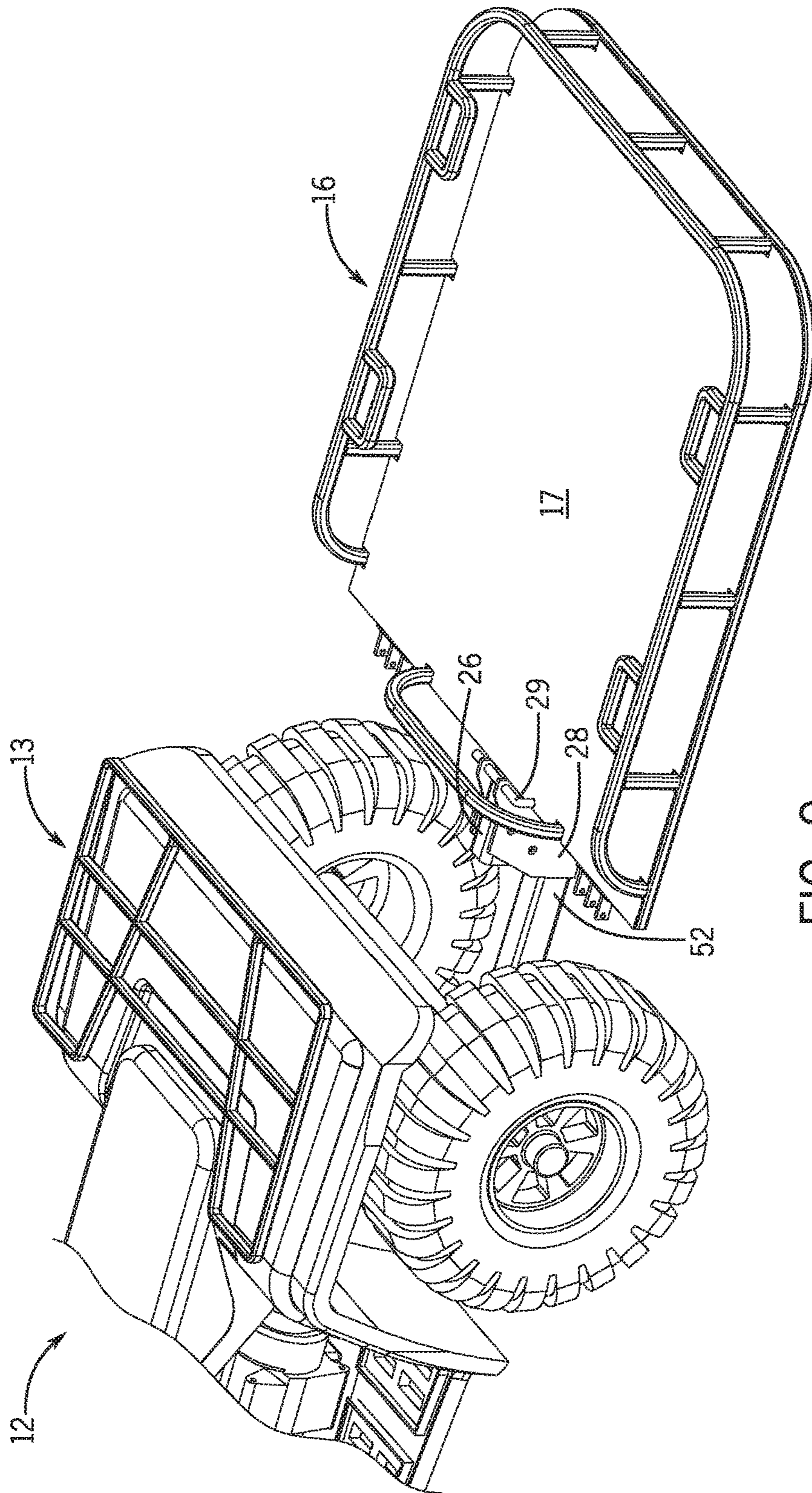


FIG. 9

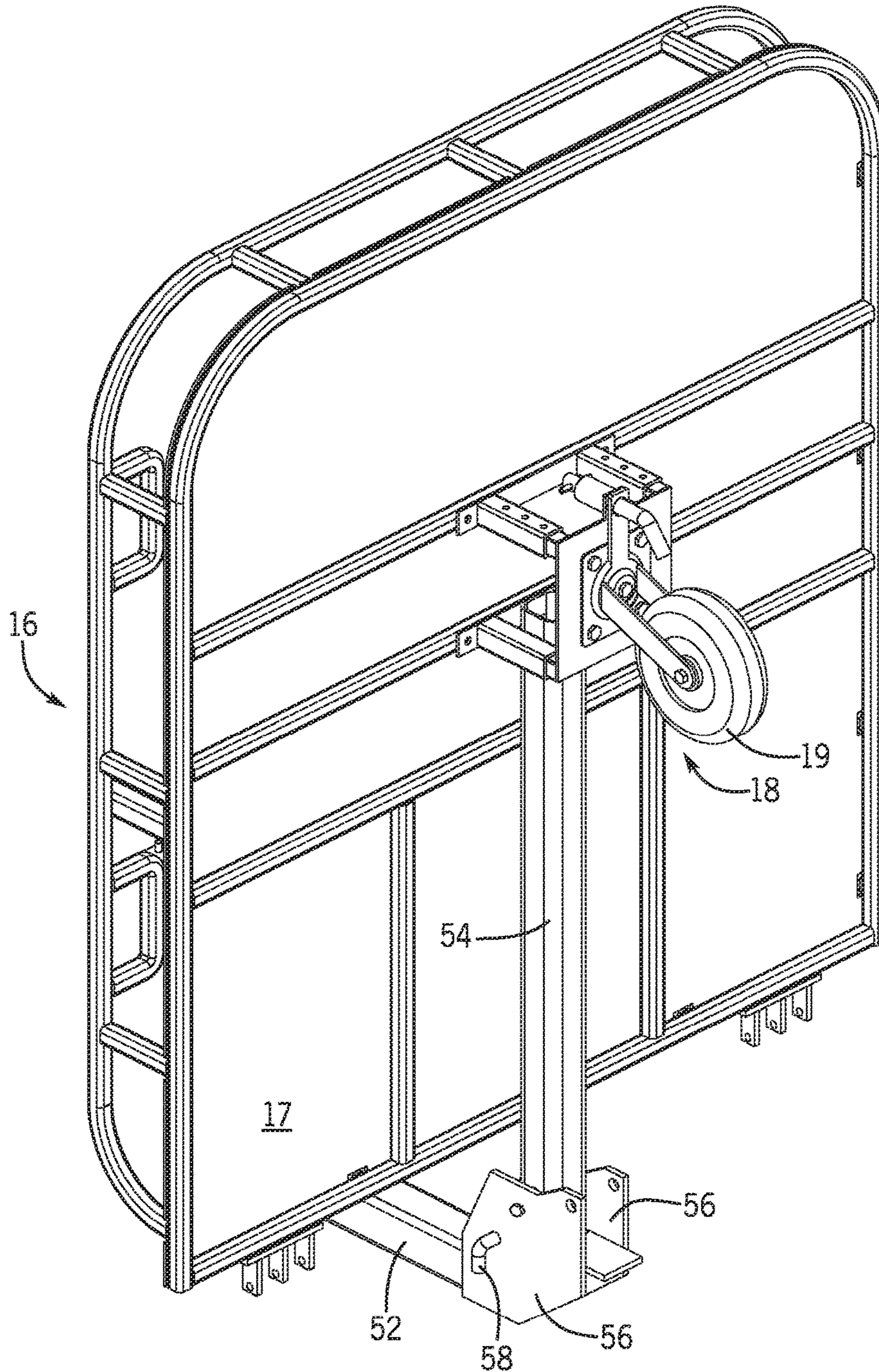


FIG. 10

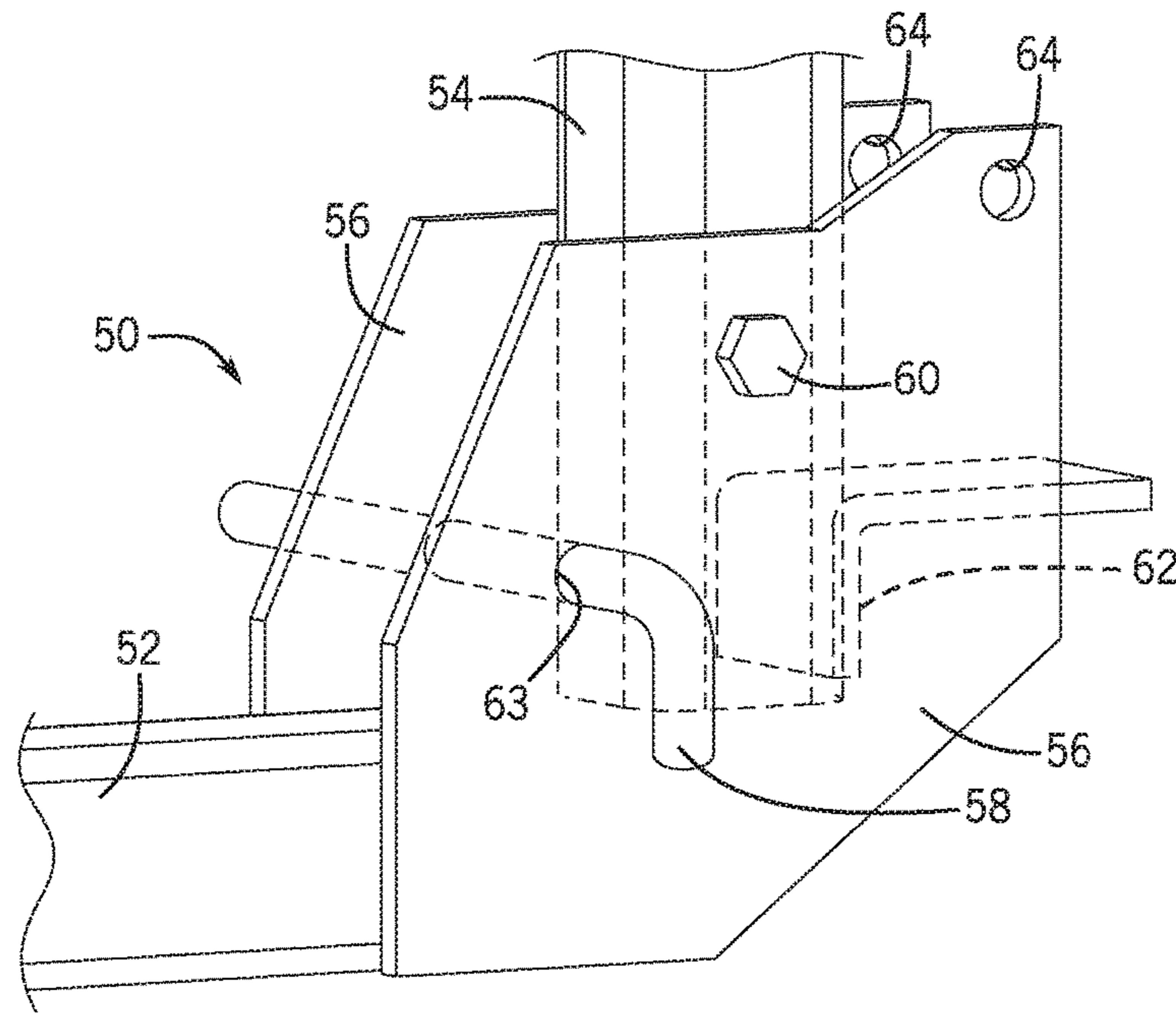


FIG. 11

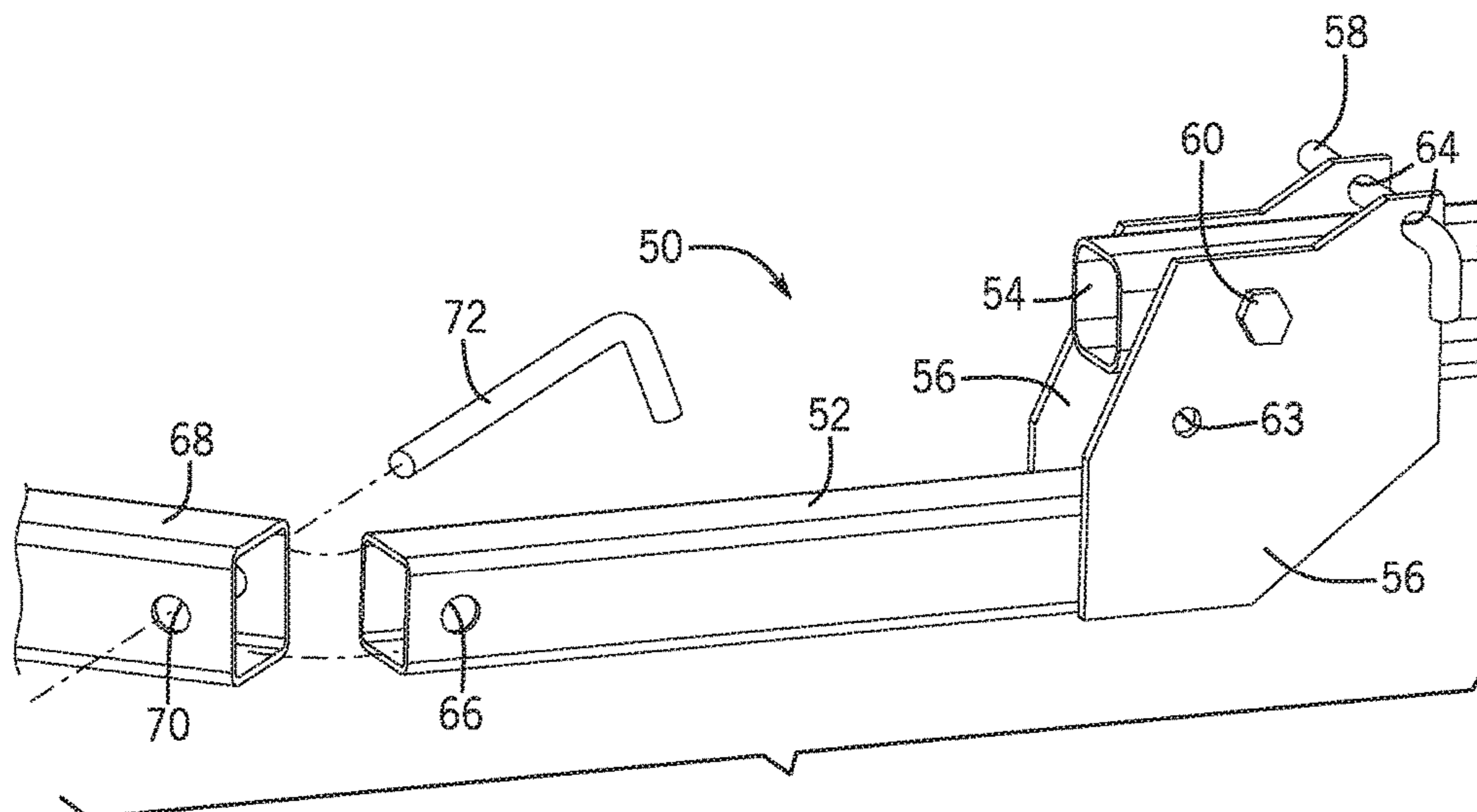


FIG. 12

1**ALL-TERRAIN VEHICLE TRAILER****BACKGROUND OF THE INVENTION**

The present invention relates to all-terrain vehicles and, more particularly, to a trailer made for all-terrain vehicles.

An all-terrain vehicle (ATV) is a vehicle that travels on low-pressure tires, with a seat that is straddled by the operator, along with handlebars for steering control. Utility-terrain vehicle (UTV) has bucket or bench seats and a steering wheel. As the name implies, it is designed to handle a wider variety of terrain than most other vehicles. Many utility ATVs or UTVs may include a rack for transportation of materials. However, racks are usually small and do not provide enough hauling space.

The majority of the trailers currently on the market do not fit most ATV/UTVs. Further, current trailers usually include two wheels and require the user to remove it with each use when the ATV/UTV needs to be used alone without the trailer attachment. The maneuverability is cumbersome when backing up and most have limited payload capacity.

As can be seen, there is a need for an improved trailer that secures to a rear end of an ATV.

SUMMARY OF THE INVENTION

In one aspect of the present invention, an all-terrain vehicle (ATV) trailer comprises: an ATV mount operable to secure to a rear end of an ATV; a trailer frame comprising a platform, wherein the trailer frame is pivotally secured to the ATV mount; at least one wheel secured to a bottom surface of the trailer frame; and a locking mechanism operable to lock the trailer frame in a retracted position and a deployed position, wherein the retracted position comprises the trailer frame substantially vertical and pivoted towards the ATV and the deployed position comprises the trailer frame substantially horizontal and pivoted away from the ATV.

These and other features, aspects and advantages of the present invention will become better understood with reference to the following drawings, description and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front perspective view of an embodiment of the present invention in a retracted position mounted on an ATV/UTV;

FIG. 2 is a rear perspective view of an embodiment of the present invention in a retracted position mounted on an ATV/UTV;

FIG. 3 is a perspective view of an embodiment of the present invention in a deployed position mounted on an ATV/UTV;

FIG. 4 is a rear perspective view of an embodiment of the present invention in a retracted position;

FIG. 5 is a detail perspective view of line 5-5 of FIG. 4;

FIG. 6 is a detail perspective view of line 6-6 of FIG. 4;

FIG. 7 is a detail perspective view of line 7-7 of FIG. 4;

FIG. 8 is a rear perspective view of an embodiment of the present invention in a retracted position mounted on an ATV/UTV;

FIG. 9 is a perspective view of an embodiment of the present invention in a deployed position mounted on an ATV/UTV;

FIG. 10 is a perspective view of an embodiment of the present invention in a retracted position;

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FIG. 11 is an exploded detail perspective view of an embodiment of the present invention in a retracted position; and

FIG. 12 is an exploded detail perspective view of an embodiment of the present invention in a deployed position.

DETAILED DESCRIPTION OF THE INVENTION

The following detailed description is of the best currently contemplated modes of carrying out exemplary embodiments of the invention. The description is not to be taken in a limiting sense, but is made merely for the purpose of illustrating the general principles of the invention, since the scope of the invention is best defined by the appended claims.

The present invention includes an ATV/UTV fifth wheel backpack with a dual mounting system. The present invention assists in hauling heavy items, such as hay, gardening, farming, hunting equipment, fishing gear, and other outdoor activities. The present invention improves the versatility of using an ATV/UTV to enhance the carrying capacity which allows the user to carry 300 lbs or more of payload. The dual mounting system allows the device to be mounted to any ATV/UTV. Further, the dual system folds up and is compact when not in use and does not have to be removed from the ATV/UTV, allowing the user to use the ATV/UTV with the system still attached and always available when needed.

Referring to FIGS. 1 through 12, the present invention includes an all-terrain vehicle (ATV) trailer 16. The ATV trailer 16 includes an ATV mount operable to secure to a rear end of an ATV 12. The ATV trailer 16 further includes a trailer frame 44 having a platform 17. The platform may include sidewalls and rounded corners. The floor of the platform is made of expanded metal which makes the platform lightweight. The trailer frame 44 is pivotally secured to the ATV mount. At least one wheel 19 is secured to a bottom surface of the trailer frame 44. A locking mechanism is operable to lock the trailer frame 44 in a retracted position and a deployed position. The retracted position includes the trailer frame 44 substantially vertical and pivoted towards the ATV 12 and the deployed position includes the trailer frame 44 substantially horizontal and pivoted away from the ATV 12.

The present invention may utilize a single wheel secured to a central bottom portion of the trailer frame 44. The wheel 19 of the present invention may be secured to the bottom surface by a wheel assembly 18. The wheel assembly 18 includes legs 32 including a first end secured to the frame 44 and a second end secured to a base plate 34. The legs 32 may be adjustable in length to adjust to different sized ATVs 12. For example, each leg 42 may include telescoping tubes with aligning apertures and a pin that fits within the aligned apertures at different lengths. A yoke 36 may be pivotally secured to the base plate by a pivot pin 38 along a vertical axis when the ATV trailer 16 is in the deployed position. The wheel 19 may be pivotally secured within the yoke 36 along a horizontal axis. Therefore, the wheel 19 may pivot about a vertical and horizontal axis, and thereby may swivel. The wheel assembly 18 may further include a wheel lock. A tongue 40 extends laterally from the yoke 36. An aperture formed through the tongue 40 aligns with an aperture formed through the base plate 34. A locking pin 42 fits through the aligning apertures, preventing the wheel assembly 18 from pivoting along the vertical axis.

FIGS. 1 through 7 illustrates a first embodiment 10 of the present invention. The ATV mount includes horizontal

mounts **24** secured to the rack **13** by clamps or U-bolts and vertical mounts **14** extending downward from distal ends of the horizontal mounts **24**. The horizontal mounts **24** may be adjustable in length to adjust to different sized ATVs **12**. For example, the horizontal mounts **24** may include telescoping tubes with aligning apertures and a pin or the horizontal mounts **24** may include threaded mating tubes. The top ends of the vertical mounts **14** may each include a latch **15** extending therefrom. A cross frame may secure the vertical mounts **14** together to add structural integrity. The bottom ends of the vertical mounts **14** may pivotally secure to the frame **44** by a pivotal attachment **26** including a pivot pin **28** and a bale **30**. A structural tube **22** may be secured to a bottom portion of the trailer frame **44**. The structure tube allows the present invention to be installed on to the hitch of on any ATV/UTV as explained below.

In such embodiments, the platform **17** may include latch receivers **20**. Slots **43** are formed within the latch receivers **20**. When transforming the present invention from the deployed position to the retracted position, the user may pivot the frame **44** upward towards the ATV **12**. The latches **15** of the vertical mounts **14** are inserted through the slots **43** of the latch receiver **20**. The distal ends of the latches **15** may each include an aperture. A pin **46** may fit through each aperture and a bale **48** prevents the pin **46** from escaping the apertures. The pin **46** and bale **48** thereby lock the frame **44** in the retracted position.

FIGS. **8** through **12** illustrate a second embodiment **50** of the present invention. The ATV mount may include a mount tube **52**. The mount tube **52** includes an aperture **66** that aligns with an aperture **70** formed through a trailer receiver **68** of an ATV **12**. A pin **72** fits within the aligned apertures **66**, **70** and locks the mount tube **52** to the receiver **68**. Side plates **56** may be secured to a distal end of the mount tube **52**. A pivoting tube **54** may be pivotally connected to the side plates **56** by a pivot pin **60**. The trailer frame **44** is secured to the pivoting tube **54**. The side plates **56**, pivoting tube **54** and pivot pin **60** allow the trailer **16** to pivot into the deployed and retracted position.

The locking mechanism of the present invention may include the following. A stopper **62** is secured within the side plates **56**. The stopper **62** may include a vertical portion and a horizontal portion. The side plates **56** may further include first aligning apertures **63** and second aligning apertures **64**. In the retracted position, a pin **58** is disposed within the first aligning apertures **63** and the pivoting tube **54** is secured in between the vertical portion and the pin **58**. To transform the trailer **16** to the deployed position, the pin **58** is removed and the pivoting tube **54** is pivoted until the pivoting tube **54** rests against the horizontal portion. To lock the trailer **16** in the horizontal portion, the pin **58** is inserted into the second aligning apertures **64** and the pivoting tube **54** is secured in between the horizontal portion and the pin **58**.

It should be understood, of course, that the foregoing relates to exemplary embodiments of the invention and that modifications may be made without departing from the spirit and scope of the invention as set forth in the following claims.

What is claimed is:

1. An all-terrain vehicle (ATV) trailer comprising:
 - an ATV mount comprising horizontal mounts operable to secure to a rack of an ATV and vertical mounts attached to and extending downward from the horizontal mounts;
 - a trailer frame comprising a platform, wherein the trailer frame is pivotally secured to the ATV mount;
 - at least one wheel secured to a bottom surface of the trailer frame; and
 - a locking mechanism operable to lock the trailer frame in a retracted position and a deployed position, wherein the retracted position comprises the trailer frame substantially vertical and pivoted towards the ATV and the deployed position comprises the trailer frame substantially horizontal and pivoted away from the ATV.
2. The ATV trailer of claim 1, wherein the at least one wheel is pivotally secured to a central portion of the bottom surface, wherein the wheel pivots about a vertical axis when in the deployed position.
3. The ATV trailer of claim 2, further comprising a wheel lock operable to lock the wheel and prevent the wheel from pivoting about the vertical axis.
4. The ATV trailer of claim 2, wherein the at least one wheel is mounted to the bottom surface by legs comprising an adjustable length.
5. The ATV trailer of claim 1, further comprising latches secured to top ends of the vertical mounts, wherein the latches fit and secure within latch receivers formed through the platform in the retracted position.
6. The ATV trailer of claim 1, wherein the horizontal mounts are adjustable in length.
7. The ATV trailer of claim 1, wherein the ATV mount comprising a mount tube operable to releasably secure within a trailer receiver of the ATV.
8. The ATV trailer of claim 7, further comprising:
 - side plates secured to a distal end of the mount tube; and
 - a pivoting tube secured to the trailer frame and pivotally attached within the side plates.
9. The ATV trailer of claim 8, wherein the locking mechanism comprises:
 - a stopper secured in between the side plates and comprising a vertical portion and a horizontal portion;
 - first aligning apertures formed through the side plates;
 - second aligning apertures formed through the side plates; and
 - and
 - a locking pin, wherein
 - the retracted position comprises the locking pin disposed within the first aligning apertures and the pivoting tube disposed in between the locking pin and the horizontal portion; and
 - the deployed position comprises the locking pin disposed within the second aligning apertures and the pivoting tube disposed in between the locking pin and the vertical portion.

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